UCSI UNIVERSITY
TEACHING PLAN

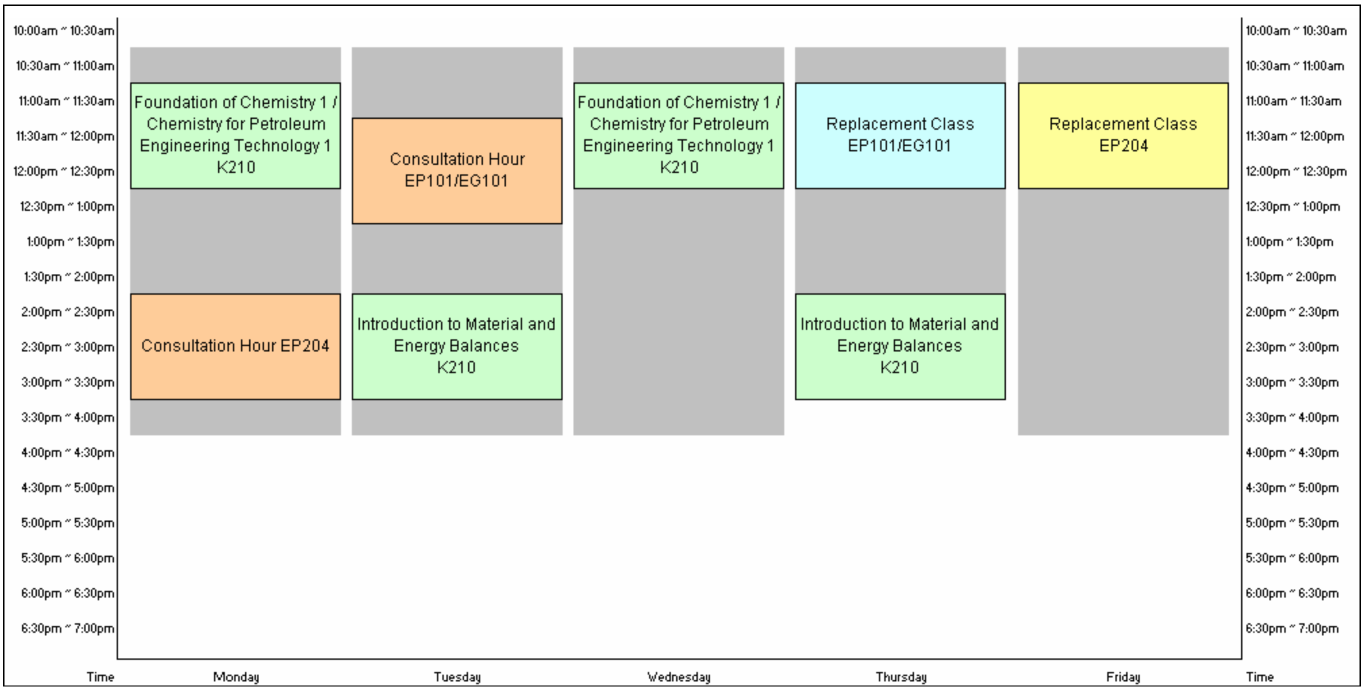
Subject Name	Chemistry for Petroleum Engineering Technology-I / Foundation of Chemistry I
Subject Code	EG101 / EP101
Status	Major
Credit Hours	4
Semester/Year	2-1
Pre-requisite	None
Teaching Method	Lectures and Laboratory
Assessment	Test 1 10% Test 2 10% Mid Term Examination 20% Final Examination 50% Laboratory 10% **Total** **100%** 40% ruling: Applicable Supplementary Exam: Applicable
Lecturer	Miss Tan Jully (tanjully@ucsi.edu.my)
Course Description	Students will learn the basic of organic chemistry and pinpoint its importance in chemical industries. Topics will include the following: aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds. Students will learn the naming of the organic compounds, physical and chemical properties of the organic compounds, syntheses and reaction of the organic compounds.
Objective	This class is a basic introductory to organic chemistry in chemical or petroleum engineering study. This unit aims to: 1. Provide the theory of elements organic chemistry. 2. Expose to the technique of naming organic compounds according to IUPAC method. 3. Provide the basic understands physical and chemical properties of the different organic compounds which include aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds. 4. Provide and expose to the different type of chemical syntheses and reaction mechanisms of the aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds. 5. Explain the importance of carbonyl compounds in industry. 6. Strengthen their knowledge by performing selected laboratory experiments. 7. Pinpoint the basic analytical tools, such as Analytical separation techniques, Gas Chromatography, Spectro-photometric principles, HPLC and Atomic absorption.
Learning outcome	At the end of the course, students should be able to: 1. Explain the different type of hybridization. 2. Explain the different type of compound bonding. 3. Draw the Lewis bonding structure. 4. Naming the organic compounds (aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds) according to IUPAC methods. 5. Explain the physical and chemical properties of a specific organic compound ranging from aliphatic hydrocarbon compounds, aromatic compounds to carbonyl compounds. 6. Compare difference between organic compounds (aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds) based on the physical and chemical properties. 7. Explain the syntheses mechanism of organic compound from a given compound.(aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds). 8. Explain the reaction mechanism of desired product from an compound. (aliphatic hydrocarbon compounds, aromatic compounds and carbonyl compounds). 9. Explain the basic analytical tools such as Analytical separation techniques, Gas Chromatography, Spectro-photometric principles, HPLC and Atomic absorption and its application.

Syllabus & Contact hour	**Weekly Schedule**

Week	***Date***	***Description***
Week 1	4-8 Jan	Getting Started. Introduction to the class. 1. Introduction to foundation of chemistry: -physical properties of metal or non-metal -periodic table classification
Week 2	11-15 Jan *R'placement Class* 14 Jan (11am-1230noon)	2. Introduction to Aliphatic hydrocarbon. 3. Alkanes: - Physical & chemistry properties - Naming - Synthesis & reaction 4. Alkenes: -Physical & chemistry properties - Naming
Week 3	18-22 Jan *R'placement Class* 21 Jan (11am-1230noon)	4. Alkenes: - Synthesis & reaction 5. Alkynes -Physical & chemistry properties -Synthesis & reaction
Week 3 (Sat)	23 Jan *R'placement Class* 10am-1pm	**Test 1 (10am-1130am)** 6. Alcohol - Structure, naming, physical & chemical properties.
Week 4	25-29 Jan *R'placement Class* 28 Jan (11am-1230noon)	6. Alcohol: - Synthesis and reaction of alcohol. 7. Aromatic compound: - Structure, naming, physical & chemical properties. -Synthesis and reaction of aromatic compound.
Week 5	1-5 Feb *R'placement Class* 4 Feb (11am-1230noon)	7. Aromatic compound: -Strategy in synthesis of multi-substituted of benzene derivative. 8. Carbonyl compound: 8.1 Carboxylic acid: - Structure, naming, physical & chemical properties. - Synthesis and reaction of carboxylic acid.
Week 6	8-12 Feb	8.2 Carboxylic acid derivative - Structure, naming, physical & chemical properties. - Synthesis and reaction of carboxylic acid derivative
Week 6	**11 Feb** *R'placement Class* (11am-1230noon)	**Mid Term**
Week 7	15-19 Feb	Chinese New Year Holiday

	Week 8	22-26 Feb *R'placement Class* 25 Feb (11am-1230noon)	8.3 Ketone & Aldehyde: - Structure, naming, physical & chemical properties. - Synthesis and reaction of ketone & aldehyde.
	Week 9	1-5 March	9.0 Basic of Analytical Tools 9.1 Gas Chromatography, 9.2 Spectro-photometric principles 9.3 HPLC 9.4 Atomic absorption
	Week 9	**4 March** *R'placement Class* (11am-1230noon)	**Test 2**
Laboratory Session	1.1 Reaction Stoichiometry 1.2 Acid Base Titration 1.3 Crystallization Of A Crude Sample 1.4 Physical Properties Analysis 1.5 Simple Distillation for Miscible Mixture		
Reference	1. Organic Chemistry, 9th Edition, T. W. Graham Solomons, University of South Florida, Craig B. Fryhle, Pacific Lutheran University. 2. Organic Chemistry (Vol. 1 & II) 6th Edition, by I.L. Finar, Longman Group Ltd. London. 3. March's Advance Organic Chemistry: Reactions, Mechanism and Structure, by M.B.Smith and J.March, John Wiley & Sons Inc. 2001.		

--------------*As of 27 Dec 2009. Note that the order of classes subjected to change.*----------------



Time	Monday	Tuesday	Wednesday	Thursday	Friday	Time
10:00am ~ 10:30am						10:00am ~ 10:30am
10:30am ~ 11:00am						10:30am ~ 11:00am
11:00am ~ 11:30am	Foundation of Chemistry 1 / Chemistry for Petroleum Engineering Technology 1 K210		Foundation of Chemistry 1 / Chemistry for Petroleum Engineering Technology 1 K210	Replacement Class EP101/EG101	Replacement Class EP204	11:00am ~ 11:30am
11:30am ~ 12:00pm		Consultation Hour EP101/EG101				11:30am ~ 12:00pm
12:00pm ~ 12:30pm						12:00pm ~ 12:30pm
12:30pm ~ 1:00pm						12:30pm ~ 1:00pm
1:00pm ~ 1:30pm						1:00pm ~ 1:30pm
1:30pm ~ 2:00pm						1:30pm ~ 2:00pm
2:00pm ~ 2:30pm	Consultation Hour EP204	Introduction to Material and Energy Balances K210		Introduction to Material and Energy Balances K210		2:00pm ~ 2:30pm
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6:30pm ~ 7:00pm						6:30pm ~ 7:00pm